

- Love, J. R. B. 1930. Rock paintings of the Wororra and their mythological interpretation. *Roy. Soc. of Western Australia, Jour.*, 16: 1-24.
- Sofoulis, J., D. C. Gellatly, G. M. Derriek, R. A. Fairbridge and C. M. Morgan. 1971. The geology of the Yampi. 1:250,000 Sheet Area SE/51-3 Western Australia. *Bureau of Mineral Resources, Geology and Geophysics. Record.* 1971/1.
- Tindale, N. B. 1940. Results of the Harvard-Adelaide Universities Anthropological Expedition, 1938-39. Distribution of Australian Aboriginal tribes: a field survey. *Trans. Roy. Soc. South Australia*, 64: 140-231.

SOME NOTES ON THE DECLINE AND SUBSEQUENT RECOVERY OF MAMMAL POPULATIONS IN THE SOUTH-WEST.

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The very serious decline in numbers of the small marsupials inhabiting the south-west part of the State in the late 1930's has been referred to in past numbers of the *W. A. Naturalist*. Some valuable observations referring to this matter appear in 3 (5): 101-103; 4 (6): 125-141; and 8 (6): 150-151.

My own conclusions, based on observation and discussion with many interested people, indicates that there was a catastrophic collapse of populations of possums (both *Trichosurus vulpecula* and *Pseudocheirus peregrinus*), Woylies (*Bettongia penicillata*), Quokkas (*Setonix brachyurus*), and Tammars (*Macropus eugenii*) during the period 1938 to 1944. Prior to this these animals were quite common within their respective habitats. The Brush Wallaby (*Macropus irma*) did not appear to be so seriously affected and whilst numbers were reduced it has continued to inhabit all of its usual haunts and in recent years appears to be gaining in numbers.

Destruction of habitats and interference with the environment must have been important factors in this depletion but it seems logical to assume that the sudden drastic and widespread reduction in numbers could only be achieved by a disease striking populations completely susceptible or unresistant to it. Introduced foxes and feral cats would undoubtedly have had some effect in reducing the numbers of small marsupials but we have the situation where discrete populations have survived in spite of these predators and are now increasing despite their continuing presence. Good examples of this are the Ringtail and Brushtail Possums which by about 1945 had practically disappeared from the Jarrah and Marri forests of the south west.

In January 1973 on a journey from Perth to Albany by road I counted five dead Brushtail Possums and one Ringtail between Armadale and Williams. One can now find "possum trees" in many parts of our State forests, these are trees with well defined tracks of scratch marks in the bark, leading up to a hollow in which a Possum has made its home. These trees were a feature of our forests when I was a young man but they gradually disappeared until one could travel all day in our Jarrah forests and never see one. That they are becoming increasingly easy to find now is most heartening and encouraging.

Scattered populations of Woylies exist from Dryandra to Lake Muir down the eastern side of the Jarrah forest where it intermingles with Wandoo. This little animal has been able to maintain itself at Dryandra under Forest Department protection and now appears to be regaining a foothold in the forests to the south.

Quokkas occurred abundantly where a dense low cover of vegetation afforded them the protection they needed, mainly around swamps and along creek and river courses, from the valley of the Helena River eastwards to its junction with the Darkan, and south to the south coast. With the exception of a very few discrete groups these animals have vanished from this region. It was thought at one stage that they were actually extinct on the mainland but happily this has not proved to be the case. Hopefully these isolated groups will eventually succeed in restocking their old haunts.

As a matter of interest and to satisfy my own curiosity I decided in January 1970 that I would examine as thoroughly as I was able a small area with which I had been very familiar since about 1945. It has been swept by some very severe fires in that time and I thought it would be interesting to find out just what native animals have been able to survive these fires and predation by introduced foxes and feral cats. I knew little or nothing about trapping apart from some advice and help given me by Dr. Stephen Davies of CSIRO Division of Wildlife Research but this was enough to get me started. I started operations with two wire cage type traps, one end of which operated as a trap door. In the following year I added twelve aluminium tunnel type traps. I also made a number of pit traps by soldering tins together and then removing one end and these were sunk in the ground with the open end at ground level. Glass jars were also used as pit type traps and were tied to flowering Banksias and Christmas trees. The wire cage and tunnel traps were baited with raw and cooked meat, bread, and a mixture of peanut butter, honey and oatmeal. Pit type traps were baited with a little honey and water which attracts many insects and which in turn induces insect eating animals, small lizards and frogs to enter them. All animals were released after recording and in some cases being photographed, nearly all of them where they were caught. They were not marked in any way and so some may have been trapped more than once. However the object of the exercise was to try and find out what animals were present with little emphasis on their numbers.

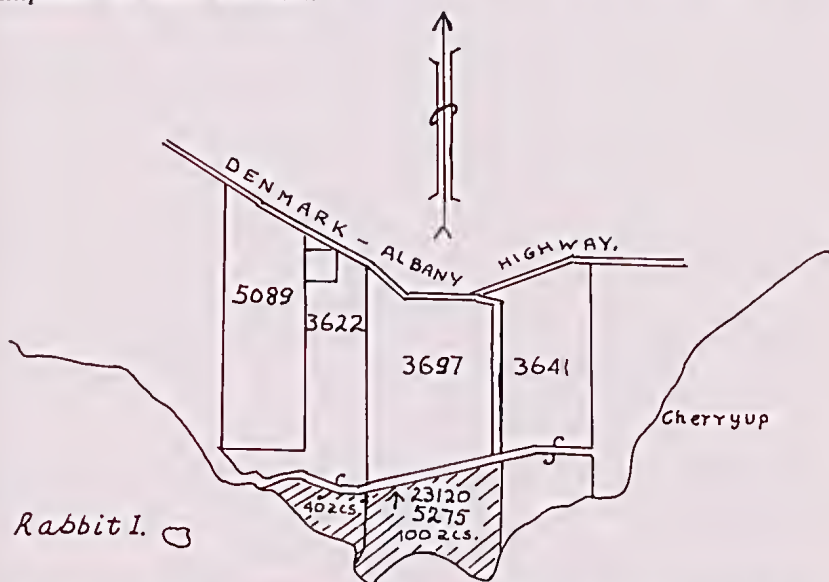


Fig. 1.—The study area (hatched), on the northern shore of Wilson Inlet. Scale, one inch to 40 chains.

THE STUDY AREA

The study area lies about four miles E.S.E. of the town of Denmark. It is situated between the northern shore of Wilson Inlet and the old Albany to Denmark railway which has now been closed and gazetted as road no. 14132. The area comprises Public Utility and Recreation reserve 23120 which has an area of about 100 acres and the adjoining southern part of Location 3622 which lies south of the old railway adding an additional 40 acres. It is bounded on the north by farm land and pastures, on the east by bushland and some part cleared farm land, on the south by Wilson Inlet and on the west by uncleared and part cleared farm land

which includes a holiday camping area. Reserve 23120 still carries its original vegetation whilst the southern part of Location 3622 has been part cleared but is reverting to bushland again.

The study area includes four fairly distinctive environments as follows:—

(a) Low rises or hills carrying rather stunted Jarrah (*Eucalyptus marginata*), Marri (*Eucalyptus calophylla*), Yellow Tingle (*Eucalyptus guilfoylei*), Sheoak (*Casuarina fraseriana*), *Banksia grandis* and *Persoonia longifolia*. There is a fairly dense low ground cover of Blackboys (*Xanthorrhoea preissii*), *Agonis parviceps*, *Agonis flexuosa* (a scrubby form), *Agonis hypericifolia*, *Adenanthos cuneata*, *Daviesia* sp., *Jacksonia* sp., *Dasypogon bromeliaefolius*, *Podocarpus drouyniana* being some of the larger and more noticeable species. Soils are sandy to gravelly and laterite rocks and boulders are common on the hill tops.

(b) Deep sandy soils carrying mainly *Banksia attenuata*, *Banksia ilicifolia*, *Casuarina fraseriana*, Blackboys and many low scrubby species.

(c) Sandy flats carrying scattered paper barks and Christmas trees, occasionally *Eucalyptus megacarpa* and *Banksia littoralis*.

(d) Swampy areas carrying teatree and paper barks, *Banksia littoralis* and a number of species of Cyperaceae and Restionaceae. Along the shores of the inlet *Banksia verticillata* is common.

RESULTS OF THE TRAPPING PROGRAMME

Three only of the environments described above were examined, namely (a), (b) and (d). The animals caught in each were as follows:—

Type (a).

<i>Sminthopsis murlina</i>	3
<i>Tarsipes spenseae</i>	3
<i>Isodon obesulus</i>	2

Type (b).

<i>Isodon obesulus</i>	5
<i>Rattus fuscipes</i>	8
Feral cats	3

Type (d).

<i>Isodon obesulus</i>	9
<i>Rattus fuscipes</i>	43
<i>Hydromys chrysogaster</i>	3
<i>Rattus rattus</i>	6

In addition to the animals actually caught the following also inhabit the study area:—

Grey Kangaroo, *Macropus fuliginosus*: Frequently seen.

Brush Wallaby, *Macropus irma*: Frequently seen.

European Fox, *Vulpes vulpes*: Tracks are frequently seen but the animal itself rarely. Often heard at night.

European Rabbit, *Oryctolagus cuniculus*: Moderately abundant and often seen.

SUMMARY AND COMMENT

Seven species of native animals have been identified so far from the study area, ranging from the tiny *Tarsipes* and *Sminthopsis* to the big Grey Kangaroo. It is interesting to learn that despite predation by introduced foxes, feral cats and European rats and the effects of repeated severe fires many small native animals are surviving on this area.

It should be mentioned that the trapping of native fauna is prohibited by law but it is possible to obtain a licence from the Department of Fisheries and Fauna to cover work such as that outlined in this report.